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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,538	01/26/2001	Zheng J. Geng	80169-0026 (GNX-026)	6786

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EXAMINER

NGUYEN, JENNIFER T

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 06/04/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/770,538

Applicant(s)

GENG, ZHENG J.

Examiner

Jennifer T Nguyen

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-9 and 15-17 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Drawings*

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6 and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Batchko (U.S. Patent No. 5,148,310).

Regarding claims 1 and 10, referring to Figs. 1-3, Batchko teaches a volumetric three-dimensional display device (10) with an interactive pointer (26), the device comprising: a rotating helical display screen (44) that sweeps out a cylindrical three-dimensional display space; a projector (18) (i.e., data acquisition, camera...) for projecting two-dimensional slices of a three dimensional data set on said rotating helical display screen (44) so as to generate a three dimensional volumetric display on said rotating helical display screen (44); and a laser pointer (26) (i.e., laser scanner) generating a pulsed laser beam (28) (i.e., Z-R) (see abstract, col. 4, lines 51-66, col. 5, lines 60-67, col. 6, lines 18-45).

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Regarding claims 2 and 11, Batchko teaches the pulsed laser beam (28) is pulsed at a period matching a rotational period of said rotating helical display screen (44) so that said laser beam, if said pointer (26) is maintained in a constant orientation relative to said rotating helical display screen (44), strikes said rotating helical display screen (44) at a single spatial point in said cylindrical three-dimensional display space each rotation of said rotating helical display screen (44) (col. 5, lines 60-68 and col. 6, lines 46-66).

Regarding claims 3 and 12, Batchko teaches the laser pointer (26) further comprises a phase control device (58) for controlling a phase of said pulsed laser beam (28) such that said pulsed laser beam (28) strikes said rotating screen (44) at different points in said three-dimensional display space as said phase is changed (col. 7, lines 54-62).

Regarding claim 4, Batchko teaches projector comprises a spatial light modulator (col. 3, lines 45-57).

Regarding claims 5 and 13, referring to Fig. 1, Batchko teaches the laser pointer (26) further comprises an orientation sensor and said laser pointer wireless transmits (14) a signal indicating said pointer's orientation relative to said three-dimensional display space (col. 3, lines 26-34, col. 6, lines 18-45).

Regarding claims 6 and 14, referring to Fig. 1, Batchko teaches a wireless receiver (14) for receiving said signal indicating said pointer's orientation relative to said three-dimensional display space, wherein said received signal is provided to a central processor of said display device and said three-dimensional volumetric display (44) is modified to indicate that section of said three-dimensional display space at which said pulsed laser beam (28) strikes said rotating helical display screen (44) (col. 3, lines 26-34, col. 6, lines 18-45).

4. Claims 7-9 and 15-17 are allowed.
5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Lee (U.S. Patent No. 6,559,840) teaches process for transforming 2D images into 3D illusions.

Brotz (U.S. Patent No. 6,115,006) teaches rotating display device and method for producing a 3D real image.

Geng (U.S. Patent No. 6,064,423) teaches method and apparatus for high resolution 3D display.

Tsao (U.S. Patent No. 6,302,542) teaches moving screen projection technique for volumetric 3D display.

Anderson et al. (U.S. Patent No. 6,208,318) teaches system and method for high resolution volume display.

Thompson et al. (U.S. Patent No. 5,162,787) teaches system for digitized video system utilizing a moving display surface.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jennifer T. Nguyen** whose telephone number is **703-305-3225**. The examiner can normally be reached on Mon-Fri from 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard A Hjerpe** can be reach at **703-305-4709**.

**Any response to this action should be mailed to:**

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**Or faxed to: 703-872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA, sixth-floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Technology Center 2600 Customer Service Office whose telephone  
number is 703-306-0377.

Jennifer T. Nguyen  
Patent examiner  
Art Unit 2674



RICHARD HJERPE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600